1. What is REST?

Answer: REST, or Representational State Transfer, is an architectural style for designing

networked applications. It relies on a stateless communication model where clients can

access and manipulate resources using standard HTTP methods (GET, POST, PUT, DELETE).

REST (Representational State Transfer) is an architectural style for developing web

services that exploit the ubiquity of HTTP protocol and uses the HTTP method to define

actions. It revolves around resources where every component is a resource that can be

accessed through a shared interface using standard HTTP methods.

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2. What is a RESTFul Web Service?

Answer: A RESTful web service is a type of web service that follows the principles of

Representational State Transfer (REST). It uses standard HTTP methods (such as GET,

POST, PUT, DELETE) to perform operations on resources, and it typically communicates

using JSON or XML for data interchange. RESTful services are designed to be simple,

scalable, and stateless, making them suitable for building distributed and easily

maintainable web applications.

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3. What is a “Resource” in REST?

Answer: REST architecture treats any content as a resource, which can be either text files,

HTML pages, images, videos, or dynamic business information.

REST Server gives access to resources and modifies them, where each resource is identified

by URIs/ global IDs.

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4. What is the most popular way to represent a resource in REST?

Answer: REST uses different representations to define a resource like text, JSON, and XML.

XML and JSON are the most popular representations of resources.

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5. Which protocol is used by RESTful Web services?

Answer: RESTful web services use the HTTP protocol as a medium of communication

between the client and the server.

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6. What are some key characteristics of REST?

Answer: Key characteristics of REST are :

\* REST is stateless, therefore the SERVER has no status (or session data) With a well-applied REST API, the server could be restarted between two calls, since all data is transferred to the server

\* Web service uses POST method primarily to perform operations, while REST uses GET for accessing resources.

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7. What is messaging in RESTful Web services?

Answer: RESTful web services use the HTTP protocol as a communication tool between

the client and the server. The technique that when the client sends a message in the form

of an HTTP Request, the server sends back the HTTP reply is called Messaging. These

messages comprise message data and metadata, that is, information on the message itself.

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8. What are the core components of an HTTP request?

Answer: An HTTP request contains five key elements:

1. An action showing HTTP methods like GET, PUT, POST, and DELETE.

2. Uniform Resource Identifier (URI), which is the identifier for the resource on the server.

3. HTTP Version, which indicates HTTP version, for example-HTTP v1.1.

4. Request Header, which carries metadata (as key-value pairs) for the HTTP Request message.

Metadata could be a client (or browser) type, format supported by the client, format of a message

body format, cache settings, and so on.

5. Request Body, which indicates the message content or resource representation.

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9. What are the most commonly used HTTP methods supported by REST?

Answer:

\* GET is only used to request data from a specified resource. Get requests can be cached

and bookmarked. It remains in the browser history and haS length restrictions. GET

requests should never be used when dealing with sensitive data.

\* POST is used to send data to a server to create/update a resource. POST requests are

never cached and bookmarked and do not remain in the browser history.

\* PUT replaces all current representations of the target resource with the request payload.

\* DELETE removes the specified resource.

\* OPTIONS is used to describe the communication options for the target resource.

\* HEAD asks for a response identical to that of a GET request, but without the response body.

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4. What are cache-control headers?

Answer: Cache-control headers are used to control catching and to attain caching ability. The most commonly used cache-control headers are public, private, and No-Store.

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1. What are the features of RESTful web services?

Answer: REStful web services have the following unique features:

Client-server decoupling

Communication support

Lightweight

Uniform interface

Stateless

Layered system

Cacheable

Code on demand

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1. Explain ‘Addressing’ in RESTful web services.

Answer: The process of locating various types of resources with the help of a URL on the REST server is known as ‘addressing’ in RESTful web services. Usually, single or multiple resources are addressed by resources.

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1. Why are REST services easily scalable?

Answer: REST services are scalable due to the statelessness that they do not store data on the server even though they are requested and do not require much communication.

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9. What are Idempotent methods?

Answer: Idempotent methods are known to return the same outcome even after the same request has been made multiple times, and it avoids errors caused by duplicate requests on the client side.

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10. How can RESTful web services be tested?

Answer: The RESTful web services can be tested with the help of tools such as Swagger and Postman, which enable users to inspect query parameters, response headers, and headers, documentation of the endpoints, and conversion of endpoints to XML and JSON.

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11. What are payloads in RESTful web services?

Answer: Payloads are the request data passed through the POST or GET method and found in the message’s body of an HTTP request in RESTful web services.

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12. What is the maximum payload size that can be sent in POST methods?

Answer: Theoretically, there is no such maximum limit for payload size that can be sent in POST methods. However, payloads with larger sizes can consume larger bandwidth. Thus the server could take more time to proceed with the request.

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13. Which protocol does REST APIs use?

Answer: Protocols are used to communicate with clients where REST APIs use HTTP protocol for it.

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14. In REST APIs, which markup languages are used to represent the resources?

Answer: The resources in REST APIs are represented with the help of XML (extensible markup language) and JSON (JavaScript Object Notation).

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15. Differentiate POST and PUT methods.

Answer: POST Method

POST can create a resource on the server.

POST is not idempotent.

POST responses are cacheable.

PUT Method

PUT is used to replace a resource at a specific URI with another resource.

PUT is idempotent that it will only result in one resource even after calling it multiple times.

PUT responses are not.

16. Which HTTP request methods are supported by REST?

REST supports various types of HTTP request methods such as GET, POST, PUT, DELETE, HEAD, OPTIONS, ETC.

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17. What is CRUD?

Answer: CRUD stands for “Create, Read, Update, Delete.”

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18. The main parts of an HTTP response

Answer: The main parts of the HTTP response are the HTTP version, Status line, HTTP Response Header, and HTTP Response body.

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19. What are the most common HTTP response status codes you see while working in REST API?

Answer: Some of the most common response status codes are 200 OK, 201 Created, 400 Bad Request, 401 Unauthorized, 403 Forbidden, 404 Not Found, 500 Internal Server Error, 502 Bad Gateway, 503 Service Unavailable, etc.

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20. What is a resource?

Answer: In REST, A resource is an object with a label and accessible on the server. Resources consist of associated data, a list of methods, and a relationship with other resources on the server.

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21. What is a URI?

Answer: URI stands for ‘Uniform Resource Identifier.

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22. What is caching in the REST API?

Answer: REST API stores a copy of a server response in a particular location of computer memory to retrieve the server response fast in the future. This method is temporary and called "catching."

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23. What’s a real-world example of a REST API?

Answer: Public REST APIs are harnessed by weather apps to display weather information and share the related data. Airlines use APIs to expose the flight times and prices to allow travel and ticketing sites for businesses.

Public transportation services use APIs to make their data publicly open to make it available for mapping and navigation apps in real-time.

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1. What is the difference between REST and SOAP?

Answer: REST(Representational State Transfer)

It is an architectural design pattern used to develop web services.

It is faster in speed and more cacheable.

It inherits only the security measures concerning the protocol that have been implemented.

SOAP (Simple Object Access Protocol)

It is a strict protocol used to build secure APIs.

It is slower in speed and not cacheable.

It is able to define its own security measures.

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25. What do you understand about JAX-RS?

Answer: It is a Java-based specification implemented for RESTful services and defined by JEE.

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26. Disadvantages of RESTful web services?

Answer: RESTful web services are stateless and do not maintain session simulation responsibility as the client side does not provide a particular session id for it.

REST is not able to impose the security restriction inherently. However, it inherits them with the help of implementing protocols. Thus, the integration of SSL/TLS authentication needs to be done very carefully for better security measures of the REST APIs.

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27. Advantages of REST

Answer: HTTP makes the implementation of REST easy.

REST fits in the existing infrastructure of the web, thus the web application can easily implement the REST. XML and JSON web technologies make REST easy to learn.

The client and server communication is stateless, thus the integration is easy to build and scalable, and manageable with respect to time.

The REST architecture can adapt to a huge variety of cases due to its flexibility.

The lightweight architecture of REST makes it easy to build the applications faster as compared to other types of APIs.

REST can be tested easily in the browser with the help of API testing tools.

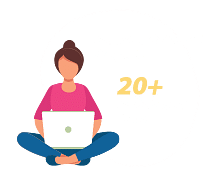
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28. How do you keep REST APIs secure?

Answer: REST APIs can be kept secure with the help of safety measures such as Authentication and authorization, API Server Validation, TSl/SSL Encryption, Rate-limiting for DDoS attacks, and sensitive information such as username, password, or authentication token should not be visible in URIs

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29. What are “Options” in REST APIs?

Answer: It is an HTTP method used to fetch the supported HTTP options or operations that help clients to choose the options in REST APIs. Cross-Origin Resource Sharing (CORS) uses the REST option method.

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30. Different types of API architectures

Answer: There are other two API architectures used, SOAP (Simple Object Access Protocol), and RPC (Remote Procedure Call)

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31. What are the different application integration styles?

Answer: The different application integration styles are Shared database, Batch file transfer, Invoking remote procedure (RPC), and Swapping asynchronous messages over a message-oriented middleware (MOM).

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32. How is JAXB related to RESTful web API?

Answer: JAXB is a Java arch used for XML binding in RESTful web API.

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33. What is AJAX?

Answer: AJAX stands for  Asynchronous javascript and XML.

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34. What does the HEAD method in REST APIs do?

Answer: The HEAD method is used to return the HTTP Header in read-only form and not the Body.

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35. Which frameworks can JAX-RS implement in the RESTful web?

Answer: JAX-RS is used to implement frameworks such as Jersey, RESTEasy, Apache, and CFX.

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36. What are HTTP status codes and their meaning?

Answer: Code 200: success.

Code 201:resource has been successfully created.

Code 204: no content in the response body.

Code 404: no method available.

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38. Why is the proper representation of resources required?

Answer: Proper representations of resources in the proper format allow the client to easily understand the format and determine the identification of resources easily.

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39. How to design Resources representation for RESTful web services?

Answer: It should be easy to understand for the client and server.

It should be complete irrespective of its format structure.

It should consider the link of the resources to other resources and handle it carefully.

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40. Important aspects of RESTful web services implementation.

Answer: ResourcesRequest

Headers

Request Body

Response Body

Status codes